

USING THE KUDER VOCATIONAL PREFERENCE TEST
IN AN AGRICULTURAL OCCUPATIONS UNIT

by

Dean M. Prochaska

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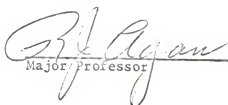
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INTRODUCTION

The study reported herein was developed by a teacher of vocational agriculture who had been teaching vocational agriculture in rural areas for eighteen years prior to the time of the study. During this time he had observed many changes which had taken place in those communities where he taught as agriculture changed from a self sufficing means of earning a livelihood to a period of technology and an area of specialization. One observed change was an increase in farm importance as the production agriculturalist became more dependent upon the related farm business for the goods and services necessary to carry on the farming operation. It became evident to the writer of this report that farm agricultural business could benefit from the experience and background of the farm reared person not planning to engage in farming.

With this change training for a farm related occupation became a topic to be dealt with in agricultural education. As the author of this report read the professional literature, he observed that writers and educators were contending that many of the functions which were performed on the farm prior to the time of the study were being transferred to off-farm agricultural businesses. It appeared that the responsibility of the vocational agriculture department was to provide the training needed for an entry into one of the agricultural businesses.

The original Congressional Act, the Smith-Hughes Act of 1917, provided for an annual grant of seven and two-tenths million dollars to be matched by the states. This was to be distributed as follows: three million dollars for agricultural training; three million dollars for trade, industrial and

and home economics education; and one million dollars for teacher training and administration.¹ It was not until 1946 that any further Congressional grants for vocational education were made. The George Barden Act provided for the additional appropriation of twenty-nine million dollars to be used to further the training provided for by the Smith-Hughes Act.² Vocational distributive education was added to the list of services to receive federal aid for training programs. In 1956, Congress added two new areas for federal reimbursement. It authorized the annual expenditure of five million dollars in the areas of nurses training and three hundred seventy-five thousand dollars for vocational education in the fishery industry. It was the observation of the writer of this report that agriculture training up to that point was confined to training for proficiency in farming. New techniques and advancements in production agriculture left a need for fewer individuals on the farm. A population growth was observed. It followed that those two factors required more people to move to the urban areas and cities to seek employment. They were not trained in a specific occupation. The unskilled labor market became overcrowded. Industry at the same time was becoming more highly mechanized, leaving many of its employees to seek employment in another area. It was apparent to the writer of this report that training was needed to fit these people for a skill or trade.

¹The National Vocational Education Act, Public Law 347, sixty fourth Congress, S. 703.

²An act to Provide for the further development of Vocational Education (George Barden) Public Law number 586, seventy ninth Congress, S. 619.

These problems were attacked directly by the Vocational Education Act of 1963.³ A study of this act revealed to the writer of this report that the act was all inclusive; it included all of the occupations except those considered to be professional, requiring a college degree. It was concerned with all age groups, at all levels and in all fields. This act was known as the Perkins Act, H. R. 4995. It authorized the distribution of funds for vocational education, sixty million dollars of which was made available in 1964. The appropriation increased each year until 1967, when two hundred twenty-five million dollars became available. This was to remain a permanent annual appropriation.

Problem

It followed in the thinking of the writer of this report that since vocational agriculture departments had been designed to educate individuals in off-farm agricultural occupations, and many of the occupations desired by the student were not available in the small rural communities, that a study was needed to attempt to evaluate the effects of securing work experience in an area not chosen by the student. This study involved the work experiences for the students of Chapman High School in selected agricultural businesses.

Objectives

The overall objective of this study was to compare the relationship the job choice of the student and his Kuder Vocational Preference test scores. Pre-test and post-test scores were taken before and after a unit on agricultural occupations.

³The Vocational Education Act of 1963. (Public Law 88-210) eighty-eighth Congress, H. R. 4995.

The specific objective of the study was to measure the increases and decreases in the Kuder Vocational Preference pre-test and post-test scores at the beginning and ending of the work experience included in the unit on agricultural occupations. The following parts of the Kuder test were used: Outdoor; Mechanical; Computational; Scientific; Persuasive; Artistic; Literary; Musical; Social Service; and Clerical.

Procedures

This study was planned in cooperation with Mr. John P. Sanborn, Counselor, Chapman High School, Chapman, Kansas. It was decided to take the following steps in carrying out the study:

1. Review the plans of the study with the high school principal and receive his approval.
2. Plan the class lessons and activities for a six weeks period.
3. Contact local agricultural businesses and seek their cooperation.
4. Have each student select three agricultural occupations of interest to him. These were then to be ranked according to preference.
5. Give the Kuder Vocational Preference Test as a pre-test to the occupational experience.
6. Devote two weeks to class study of agricultural occupations. Phases to be covered included: The importance of Agriculture to the total Economy; Salesmanship, Knowing yourself; Orientation to agricultural occupations; and Interviewing.
7. Divide the class into two groups according to their choice of an occupation. One group was to be placed in either first or second choice of an occupation. The second group was to be placed in an area not related to their occupational choices.
8. Place the students on the job for experience. They were to observe and participate in the operation of the agricultural business. The Instructor of the class was to visit each work station three times to check on the progress of the students and to offer suggestions to the cooperating firms.
9. Give the Kuder Vocational Preference Test as a post-test.

10. Have each student give an oral report on his experiences during the period he was on the job.
11. Have the class summarized the unit with the help of the Instructor.

Limitations of the Study

This study was limited to twelve high school Juniors enrolled in the Chapman High School and the occupational experiences which could be provided in the rural community of Chapman, Kansas, a town of twelve hundred population. The number and variety of agricultural businesses available for the students was limited. It was necessary to place some of the students in other than the area of their choice. It was also necessary to group the students, more than one to each business.

DEFINITION OF TERMS

Certain special terms used in this study were set aside for special definition. The definitions given may or may not have been those of common usage at the time of the study.

AGRICULTURAL OCCUPATIONS - An occupation associated with production agriculture. It could have been in the area of sales, service, distributions, processing or marketing of the product produced.

PRODUCTION AGRICULTURE - An occupation directly involving the production of food or fiber.

WORK EXPERIENCE PROGRAMS - High school and post-high programs which involved the learning by the performance of the tasks involved in the occupation.

KUDER VOCATIONAL PREFERENCE TEST - A test designed by G. Fredrick Kuder for the purpose of determining the vocational interest of individuals.

PRE-TEST - The use of the Kuder test, given to the student prior to his experiencing an agricultural occupation.

POST-TEST - The use of the Kuder test, given to the student after the completion of the work experience in an agricultural occupation.

WORK STATIONS - Agricultural business firms which provide the student with actual on the job experience in the occupation.

CHOICE GROUP - The group of students experiencing an agricultural occupation in the area of their first or second choice.

NO CHOICE GROUP - The group of students experiencing an agricultural occupation not in the area of first, second or third choice.

VOCATIONAL AGRICULTURE DEPARTMENT - A part of the public school system, offering classes in agriculture and agricultural mechanics to the high school and post high school student. A vocational experience was used to aid in the student learning.

REVIEW OF RELATED LITERATURE

This study involved student placement in an agricultural occupation. The changes in student attitudes were measured by the Kuder Vocational Preference Test. An attempt was made to compare the effectiveness of the work experience by comparing the test scores of those who were placed in an agricultural occupation of their choice with the test scores of the individuals who were not placed in the occupation of their choice. The reading of related literature revealed the following information.

Donald E. Super and Phoebe L. Overstreet related that the actual choice of an occupation was not as important as the development of a readiness to make a choice.⁴ Young people, according to these authors must be ready to make a vocational choice as they progress through school so that it will be appropriate to the individual. They cite the choice of an occupation as a process which extends over a period of time.

A study of the placement of vocational agriculture students in the state of Arkansas by Denver Hutson, showed 23% of all vocational agriculture students in that state enter an agriculturally related occupation.⁵ He also found that 28% of the students entered production agriculture. The skills acquired in agricultural mechanics were useful to 82% of the surveyed students engaged in a non-agricultural occupation. Harold Binkley and W. C. Montgomery found

⁴Donald E. Super and Phoebe L. Overstreet, The Vocational Maturity of Ninth Grade Boys. Columbia University, New York, p. 7.

⁵Denver Hutson, "Agricultural Mechanics for Students who enter Non-Farm Occupations," Agricultural Education Magazine, 39:208, March, 1967.

the farming abilities developed by vocational agriculture students in Kentucky were definitely an asset to the student entering an agricultural occupation.⁶

Harold Byram, Richard Lindstrom and Warren Parsons saw an increase in the number of persons needed in the agricultural occupations in Chicago, Cleveland and Detroit areas.⁷ They reasoned that technological developments in processing and distribution of agricultural products, urbanization and an increased demand for agricultural goods and services were the major factors in those developments. In their opinion, there was an increased need for trained employees in the area of ornamental horticulture. They saw more ornamental plantings being used around homes and public properties. President Lyndon Johnson's beautification program was cited as a cause for the critical shortage of plant materials. Those factors had created a need for large numbers of semi-skilled workers with a farm background. Two years of post high school training would be needed in that area of agriculture. Greenhouse managers, according to their study, desired the following competencies of their employees: buying; selling; marketing; managing money; insurance; welding; plumbing; electrical and woodwork skills.

Alan H. Lamb found the farm equipment and light industrial garden and lawn equipment business lacking in competent personnel.⁸ He saw a need for a special program to train individuals in those areas of employment. In a survey of

⁶Harold Binkley, "Competencies needed in Ag-Supply Business," Agricultural Education Magazine, 39:34, August, 1966.

⁷Harold Byram, Richard Lindstrom and Warren Parsons, "Training Needs for the Greenhouse Grower," Agricultural Education Magazine, 39:236, April, 1967.

⁸Alan H. Lamb, "Personnel needed in Ag. Industry," Agricultural Education Magazine, 39:45, August, 1966.

fifteen progressive farm machinery dealers in Iowa, employers listed a wide range of abilities needed by their employees.⁹ Those abilities included: determining the farmer's labor needs; crop production costs; fertilizer application methods; herbicide and insecticidal application; crop varieties; planting rates and maturity dates. Those items were all ranked above calibration of machines and associating parts with a specific machine.

E. J. Mabon and Clarence Bundy reported that country elevators provided employment for one of the largest groups of non-farm agricultural occupations in the state of Iowa.¹⁰ The fertilizer industry had grown at a rapid rate.¹¹ The volume of fertilizer sold had increased more than sixty-six times in the twenty nine year period from 1930 to 1959. It had doubled again in the four year period, 1959 to 1963. Sales of that product was expected to again double by 1970. The authors also found a trend toward the one-stop supply service center.¹² That phase of the off-farm agricultural business was expected to increase 32.4% by 1968 over the 1964 employment rate. A high school student could acquire many of the competencies needed to be successful while still in school. James Albracht listed twenty-eight of those competencies needed for success in feed sales, could be acquired in an agricultural occupations class.¹³

⁹Alan A. Kahler and Clarence Bundy, "Competencies Needed for the Farm Machinery Worker," Agricultural Education Magazine, 37:256, April, 1965.

¹⁰E. J. Mabon and Clarence Bundy, "Competencies Needed in Country Grain Elevator Grain Marketing," Agricultural Education Magazine, 37:171, January, 1965.

¹¹Thomas Powell and Clarence Bundy, "Employment Opportunities in Retail Fertilizer Distribution," Agricultural Education Magazine, 39:32-3, August, 1966.

¹²Ibid.

¹³James Albracht, "What Does It Take To Sell Feed," Agricultural Education Magazine, 39:118, November, 1966.

James Fitts surveyed the needs in agricultural machinery sales, supply and ornamental horticulture for the state of Texas.¹⁴ He suggested the following as needed for a successful program in agricultural occupations:

1. Selection of training stations which are interested and willing to train the student properly by furnishing a variety of experiences.
2. Selection of students willing to work and learn, placed in agricultural businesses suited to their interests and needs.
3. Instruction in the classroom related to the student's occupation, presented in a variety of ways and adopted to the local situation.
4. A training plan which was based on the ability of the student, type of occupation and actual work conditions of the training station.
5. Regular visitations to the training station by the teacher.

Harold Mattson and Walter Bjoraker reported the need for new businesses and services to keep pace with the needs of a more efficient and knowledgeable farmer.¹⁵ They predicted a 50% increase in the number of workers needed to fill employer needs in the non-farm agricultural businesses. The related agriculturalist needed a higher degree of skill and technical training in order to serve the modern farmer. Their survey of 336 employers indicated the need in the area of machinery sales and service. It was predicted by the employers, and increase of 57.1% in the number of employees needed in the next five years. It was predicted that the employment rate could be up as much as 142.1% within the coming ten year period.

¹⁴James Fitts, "Our Changing Role," Agricultural Education Magazine, 39:102, November 1966.

¹⁵Harold Mattson and Walter Bjoraker, "More Workers Needed in Agricultural Occupations," Agricultural Education Magazine, 39:178, February, 1967.

Vocational agriculture was relatively important to the student and was rated highest among all courses offered on the high school level. Eugene Wood, in his study on the relative importance of the vocational agriculture program, compared it to the other offerings in Illinois high school programs.¹⁶ He found former students rated vocational agriculture highest in the preparing for future work or in continuing their education. Those students, rated the agriculture teacher next to the parent for their influence in the choice of an occupation. Of the students surveyed by Eugene Wood, 53.71% of them intended to enter an agricultural occupation within five years.

Dwight L. Arnold, Professor of Education, Kent State University, wrote, "The validity of the Kuder test rests largely upon the judgment of the author."¹⁷ He saw the test as valid and useful in vocational guidance work and as a measurement of personality. He however recommended the test not be used for individual counseling. It could, however, be used as an indication of the individual's ability when his test score was compared to the scores of a group of individuals successful in a specific occupation. John Gastad, in his report on the Kuder test, claimed it held promise for counseling the vocationally undecided.¹⁸ He interpreted the test as a short inventory, suitable for developing keys to interest in specific occupations. Strong points for the Kuder test according to John Pierce Jones, were in the administering and scoring of the test.¹⁹ He saw the test as well planned and

¹⁶Eugene Wood, Evaluation of Illinois Post High Educational Programs, Southern Illinois University, February, 1967.

¹⁷Dwight L. Arnold, The Fifth Mental Measurements Yearbook, p. 863.

¹⁸John Gastad, The Fifth Mental Measurements Yearbook, p. 863.

¹⁹John Pierce Jones, The Fifth Mental Measurements Yearbook, p. 863.

approaching the Strong Vocational Interest Test.²⁰ He reported the Kuder Test was an acceptable tool to be used to measure the interest of the persons being tested. Harold D. Carter preferred the Strong Vocational Interest Test for college students and the Kuder Test as a guide for counseling high school students and adults in non-professional career selection.²¹

²⁰Edward Bord, The Fifth Mental Measurements Yearbook, p. 863.

²¹Harold D. Carter, The Fifth Mental Measurements Yearbook, p. 863.

THE STUDY

The purpose of this portion of the report is to discuss the procedures as they were used in the study, the students involved and the work experience stations which were used.

The first step to setting up an agricultural-related occupations class at Chapman High School was to get the administration's approval to start the class. It was decided that the class would be operated on a six weeks trial basis. Local business firms were then contacted. Of those visited, four consented to take students. One of the firms was reluctant to have the student working in his place of business. Liability for the student was concern of the employer.

A check sheet was prepared and handed out to each student. Three occupations were selected and ranked according to preference. The check sheets revealed six of the class members chose an occupation allied to the cooperating business firms. The remaining six members picked areas which were not closely associated with the work stations established. The Kuder Vocational Preference Test was then given as a pre-test. The students were next grouped and placed on the job. They were allowed to explore the occupation for three weeks during which time the Instructor visited each firm three times. He observed the students at work performing a variety of tasks associated with each business. The students were shown how the business was operated. At the end of this period, the students were post-tested, with the same Kuder Vocational Preference Test used previously for the pre-test. The results of the experiment were next analyzed by making tables which showed the findings of the study. These were analyzed and a list of conclusions and recommendations formulated.

There were twelve students who participated in the study. They were all farm reared boys with little understanding of off-farm agriculturally related occupations. The intelligence quotient score of the class ranged from 78 to 112 points. The two groups used in the study grouped themselves not only in occupational choices, but in I.Q. scores, scholastic standing and leadership abilities demonstrated. The choice group did have a slightly higher I.Q. score average and ranked higher in their class scholastically. They also exhibited more leadership ability as observed by the writer.

The study plan used for the six weeks period of the study was as follows: two weeks were spent in, pretesting, choosing an experience area, studying career opportunities in agriculture, learning to know yourself, salesmanship and preparation for the work experience. A typical lesson plan is included in the appendix of this study. The students were next grouped according to the area of their choice and spent three weeks on the job, observing and exploring the area. The last week of the assigned period was used to post-test, make oral reports to the class on experiences and summarizing the program.

The following agricultural businesses were used as work stations during the time allotted to experience an agricultural occupation: Farm Machinery Sales and Service; Automotive and Machinery Repair; Feed Sales and Retail Lumber Sales.

Jones-Knopp, the Case dealer, was one of the established work stations. The three students using this for their work experience indicated, Implement Sales as their choice of an occupation. They experienced with that firm, the activities of farm machinery sales and delivery, tractor tuneup, repair parts sales and adjustment of farm machinery on the farm.

Frohardt's Garage was used as the second work station. Two of the three students who used this station for their work experience picked machine shop for their choice of an occupation. The third student obtaining his work experience at that business firm, had selected veterinary work for his first choice. Those students experienced work in the areas of automobile tuneup, welding, valve grinding, combine repair and adjustment and automotive part sales.

A Co-op Elevator was used as a work station for experience in the area of feed sales. Two of the three students placed in that firm did not select this as their choice of an occupation. One of the students desired experience in the testing of milk. The other student had picked machinery sales as his choice of an occupation. Those students observed how the business was operated, received and delivered feed. They also gained some experience in feed and fertilizer sales.

The three students who received their work experience in an occupation in retail lumber business did not select that area as their choice of an occupation. One selected artificial insemination for his choice of an occupation, another desired experience in a welding shop. The third member preferred to work in a greenhouse. Experiences gained with the lumber business included the receiving and delivery of lumber, sales of lumber and hardware items.

PRESENTATION OF DATA

The Kuder Vocational Preference Test was used to measure the change in student interest after work experience in an agricultural related occupation. The Kuder Vocational Preference Test was first given as a pre-test. The students were next placed in an agricultural business for three weeks of experience. The Kuder Vocational Preference was again given as a post-test. It was used to measure the change in preference as a result of work experience in an agricultural occupation. There were ten areas to the Kuder Vocational

TABLE I
INTELLIGENCE QUOTIENT SCORES.

| Groups | I.Q.Score Average | Range |
|---------------|----------------------|--------|
| Six-choice | 99 | 83-112 |
| Six-no choice | 95 | 78-109 |
| Average | 97 | 78-112 |

Preference Test used to evaluate the student's interest. The areas in which the student was tested were: mechanical; computational; scientific; persuasive; artistic; literary; musical; clerical and social service. The writer after giving the pre-test, secured the intelligence quotient scores for the two groups compared. The group placed in the area of their choice had an average intelligence quotient score of 99 points. Those experiencing an occupation of no-choice, had an average intelligence quotient score of 95

points. This writer felt the range in scores gave an indication that the two groups were of similiar native intelligence.

A comparison of the pre-test scores of the members of the two groups for the outdoor phase of the Kuder Vocational Preference test appeared to indicate that there was a slight advantage for the group which had no-choice in their occupational experience. The six members in the group with no-choice increased

TABLE II
KUDER VOCATIONAL PREFERENCE TEST
OUTDOOR PHASE

| Groups | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 59.0 | 55.17 | -3.83 |
| Six-no choice | 66.67 | 67.17 | + .50 |

their average score from 66.67 to 67.17 points for an average increase of .50 points per member. The group with a choice in their occupational placement had a pre-test score of 59.0 points and a post-test score of 55.17 points, for a decrease of 3.83 points. The test scores for two of the six students with a choice of an occupational experience decreased their post test score by nineteen points whereas the post-test scores of the other four students were either constant or increased (see table XII in the appendix). One of the students in the no-choice group increased his post-test score by fourteen points, while another student in the same group decreased his post-test score by thirteen points. The other four members of the no-choice group increased their post-test scores over their pre-test scores. It appears that the wide variation in individual test scores was one of the problems in the use of the Kuder Vocational Preference Test. The results as shown in Table II indicated

that there was no advantage for an occupational work experience in the first choice as far as the outdoor phase of the Kuder Vocational Preference Test.

TABLE III
KUDER VOCATIONAL PREFERENCE TEST
MECHANICAL PHASE

| Groups | Pre-test | Post-test | Differences |
|---------------|----------|-----------|-------------|
| Six-choice | 50.83 | 52.5 | +1.67 |
| Six-no choice | 47.5 | 39.33 | -8.17 |

The information in Table III showed the first choice group increased their interest in the mechanical phase of the test. The average pre-test score for that group was 50.83 points and the post-test score was 52.5 points. The no-choice group decreased their interest in that phase of the test with an average pre-test score of 47.5 points and a post-test score of 39.33 points. Table XIII of the appendix revealed an even greater range in scores between the pre-test and post-test. Five of the six students with a choice of an experience increased their post-test scores over the pre-test scores while five of the six students in the no-choice group decreased their post-test score. It appears to the writer of this report from the results of the test that the student with an interest of a mechanical nature should be placed in a work experience of his choice.

TABLE IV
KUDER VOCATIONAL PREFERENCE TEST
COMPUTATIONAL PHASE

| Groups | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 23.33 | 25.0 | +1.67 |
| Six-no choice | 17.17 | 20.17 | +3.00 |

Both groups increased their post-test scores over the pre-test scores for the computational phase of the Kuder Vocational Preference Test. The choice group had an average pre-test score of 23.33 points and a post-test score of twenty-five points for an increased difference of 1.67 points. The no-choice group pre-test average score was 17.17 points and their post-test score averaged 20.17 points, an increased difference of three points. Table XIV of the appendix, which lists the pre-test and post-test scores for each individual, show five of the six students in the choice of an experience group with comparable pre-test and post-test scores. One student increased his post-test score by ten points over the pre-test score. In the no-choice group, one member decreased his post-test score by fourteen points. The other five students increased their post-test scores from one to sixteen points. It was assumed that the choice of an occupational experience would have little effect as indicated by a larger increase in the post-test scores of the students in the no-choice group.

TABLE V
KUDER VOCATIONAL PREFERENCE TEST
SCIENTIFIC PHASE

| Group | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 41.5 | 39.0 | - 2.5 |
| Six-no choice | 40.0 | 35.5 | - 4.5 |

Table V reveals the six students with a choice of an occupational experience had an average pre-test score of 41.5 points and a post-test score of 39.0 points on the scientific phase of the Kuder Vocational Preference Test, with a decrease of 2.5 points. The no-choice group also show a decrease in the post-test scores. The average pre-test score for the no-choice group was 40.0 points. Their post-test score average was 35.5 points. Table XV of the appendix showed the individual test scores for both groups in the scientific phase of the Kuder Vocational Preference Test. Three members of each group increased their post-test scores while the other three members of each group decreased their post-test scores. This was assumed to indicate that there was no advantage to placing the student in an area of choice.

TABLE VI
KUDER VOCATIONAL PREFERENCE TEST
PERSUASIVE PHASE

| Groups | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 34.33 | 38.33 | +4.0 |
| Six-no choice | 40.66 | 35.83 | -4.83 |

Table VI, persuasive phase of the Kuder Vocational Preference Test show six students with a choice of an occupational experience had an average pre-test score of 34.33 points. Their post-test score was 38.33 points, a four point increase. The no-choice group had a pre-test score of 40.66 points, their post-test score average was 35.83 points, a decrease of 4.83 points. Table XVI of the appendix showed greater decreases in the individual post-test scores for the no-choice group compared to the choice group. Five of the six members of the no-choice group decreased their post-test score. Three members of the choice group decreased in their post-test scores. The persuasive phase of the Kuder Vocational Preference Test indicated the desirability for placing the student in an area of his choice of work experience. The differences in the pre-test and post-test scores for the two groups in the persuasive phase of the Kuder Vocational Preference Test were slight as shown by Table XVI of the appendix.

The differences in the pre-test and post-test scores for the two groups in the artistic appreciation phase of the Kuder Vocational Preference Test was only slight as shown by Table VII. The choice group increased it's average post-test score over the pre-test score of average of 1.17 points. The no-choice group decreased it's post-test score by .16 points. The choice group had a pre-test score average of 31.83 points and a post-test score of 33.0 points. The average pre-test score for the no-choice group was 32.66 points with a post-test score average of 32.5 points. A study of the individual test scores, shown by Table XVII of the appendix, show both larger increases and decreases within the choice group. One student in that group increased his post-test score by eleven points, another increased his post-test score by eight points. A third student of the choice group decreased his post-test score by ten points. One student in the no-choice group had an

increase in his post-test score six points. One student in the no-choice group decreased his post-test score by nine points. The results of Table VII indicated to the writer of this report little advantage for placing the student in an area of his choice for experience in an agriculturally related occupation.

TABLE VII
KUDER VOCATIONAL PREFERENCE TEST
ARTISTIC APPRECIATION PHASE

| Group | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 31.83 | 33.0 | +1.17 |
| Six-no choice | 32.66 | 32.5 | - .16 |

A comparison of the test scores on the literary phase of the Kuder Vocational Preference Test by the students in an area of their choice compared to those not in an area of their choice, show little advantage to placing the student in the area of his choice, as indicated in the pre-test and post-test scores for both groups. The pre-test scores for the choice group averaged 13.33 points and the post-test score average was 16.17 points, an average increase of 2.84 points. The six students in the no-choice group had an average pre-test score of 11.66 points and a post-test score of 14.66 points for an increase of 3.0 points. Four of the individual students scores increased from three to eight points as shown in Table XVIII of the appendix. Five of the students experiencing an occupation in an area of no-choice increased their post-test scores from two to nine points. It seemed to the researcher in this study that there was little advantage to placing the student in an area of his choice as indicated by the literary phase of the Kuder Vocational Preference Test.

TABLE VIII
KUDER VOCATIONAL PREFERENCE TEST
LITERARY PHASE

| Groups | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 13.33 | 16.17 | +2.84 |
| Six-no choice | 11.66 | 14.66 | +3.0 |

Table IX, musical phase of the Kuder Vocational Preference Test showed a slight difference in the pre-test and post-test score averages for the two groups. The no-choice group had a higher pre-test and post-test score than the choice group however they show a larger decrease in their post-test score than the group working in the area of their choice. The pre-test scores for the no-choice group was 9.16 points with a post-test score average of 8.17 points, a decrease of .99 points. The group working in the area of their choice show a pre-test score of 5.17 points. Their post-test score was 5.66 points, a gain of .49 points. There seemed to the teacher of the groups to be a slight advantage to placing the student in the area of his choice as

TABLE IX
KUDER VOCATIONAL PREFERENCE TEST
MUSICAL PHASE

| Group | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 5.17 | 5.66 | + .49 |
| Six-no choice | 9.16 | 8.17 | - .99 |

indicated by this phase of the Kuder Vocational Preference Test. The individual scores, Table XIX of the appendix, showed that two of the students in the choice area increased their post-test score slightly while three of the students in the no-choice group decreased in their post test score.

Table X, social service phase of the Kuder Vocational preference Test showed the six students experiencing an agricultural occupation in the area of their choice had a pre-test score average of 29.67 points. Their post-test score average was 28.17 points, a decrease of 1.5 points over the pre-test score. The six students not experiencing an occupation in the area of their choice increased their post-test score 6.83 points from a pre-test score of 40.0 points to a post-test score of 46.83 points. Four of the students see Table XX of the appendix, show decreases in their post-test scores. Five of the students not working in the area of their choice increased their post-test score. There seemed to the teacher of these groups to be no apparent advantage to placing the student in an area of choice as indicated by the test score results for the social service phase of the Kuder Vocational Preference Test.

TABLE X
KUDER VOCATIONAL PREFERENCE TEST
SOCIAL SERVICE PHASE

| Group | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 29.67 | 28.17 | -1.5 |
| Six-no choice | 40.0 | 46.83 | +6.83 |

Table XI, clerical phase of the Kuder Vocational Preference Test, show the six students experiencing an agricultural occupation in the area of their choice had an average pre-test score of 48.67 points and a post-test score of 48.66 points, for a .01 point decrease. The six students experiencing an occupation not in the area of their choice had a pre-test score of 41.83 points and a post-test score average of 46.83 points, a gain of five points. A comparison of the individual test scores, shown in Table XXI of the appendix, found three students in the no-choice group increased their post-test scores. One student in that group increased his post-test score twenty-seven points.

TABLE XI
KUDER VOCATIONAL PREFERENCE TEST
CLERICAL PHASE

| Group | Pre-test | Post-test | Difference |
|---------------|----------|-----------|------------|
| Six-choice | 48.67 | 48.66 | - .01 |
| Six-no choice | 41.83 | 46.83 | +5.00 |

The other two students increased their post-test scores two and seven points. One student not working in the area of his choice showed no increase in his post-test score. The remaining two students not working in the area of choice decreased their post-test scores one and five points. Three of the students experiencing an agricultural occupation in the area of their choice increased their post-test scores three and four points. The remaining three students in the choice of an occupation group show a decrease in their post-test scores from one to seven points. The results of the clerical phase of the Kuder Vocational Preference Test indicated to the teacher of these groups there was no advantage to placing a student for work experience in the area of his choice.

SUMMARY

The teaching of agricultural related occupations has become an important part of the total program of vocational agriculture. The need for an increasing number of off-farm workers, trained in an agricultural skill has been cited by writers as revealed in the review of literature portion of this report.

Vocational agriculture departments were originally developed to train the rural youth and adults in the production practices used in agriculture. Since that was their primary concern, they were often located in the small rural communities. The number of farm workers needed to operate those larger, more highly mechanized farms was decreasing. Agricultural commodities were being produced with fewer man-hours of labor than ever before. Off-farm businesses had little to offer the individual seeking an occupation in the community. Many of the goods and services needed by the farmer were being obtained from a neighboring community.

This study gave the writer an opportunity to compare the placement of students in an agricultural occupation. Occupations often selected by the students were not available in the smaller communities and a number of the experiences for the various occupations were similar.

The purpose of this study was to compare the effectiveness of having a student experience an agricultural occupation in the area of his choice in contrast to the student receiving an experience not in the area of choice. The study was undertaken for the following reasons: (1) Non-farm agricultural occupations are increasing and the number of farmers and ranchers is decreasing; (2) Vocational agriculture departments have been designated to train individuals in agriculturally related occupations; (3) Many vocational agriculture departments are in the small communities which have only a limited number of businesses

to serve as work stations; (4) Students often show an interest in an area not available for exploration on the local level; (5) Many of the skills needed for an occupation are similiar to the skills needed to another occupation.

The Kuder Vocational Preference Test was used to test the students in the study. It was first given as a pre-test after the student had indicated a choice of an agricultural occupation. The students were then divided in two groups according to occupational choice. One group was placed in the area of choice of an occupation. The other group was placed in an occupation not in the area of choice. At the end of the three weeks exploration period, the two groups were again tested using the same Kuder Vocational Preference Test as a post-test.

The students with a choice of an occupational experience increased their average post-test scores in six of the ten phases for which the Kuder tested. The six students experiencing an occupation not of their choice increased their post-test scores in five of the ten areas being tested. A comparison of the differences in the pre-test and post-test scores for the two groups revealed the no-choice group had a wider variation between the gains and losses in the pre-test and the post-test scores for the individuals within each group.

Because of the limitations of such a small group being tested, the types of occupations available to be explored, the kind of community in which the study was made, this study should be repeated under other circumstances and with a different interest test being used as a measuring device. The six students making up the choice of an occupations group may have had a slight advantage to the six students experiencing an occupation in the area of no-choice. Their intelligence quotient scores, scholastic records and leadership abilities indicated to the researcher that this would be true. Whether this

advantage was great enough to influence vocational educators who plan the curricula, it was questionable to the researcher.

The results of the study indicated to the writer that the student should receive his agricultural experience in the area of his choice.

RECOMMENDATIONS

From a study of the comparison of the pre-test and post-test scores for the students experiencing an occupation in the area of their choice and those students experiencing an occupation in an area not of their choice, the following recommendations were made.

- (a) Establish work stations in the area of student choice.
- (b) Avoid placing students in groups of more than one to a station.
- (c) Use class time to study related information.
- (d) Obtain work experience after school, on-weekends and during summer vacations.
- (e) Receive pay for the time the student spends at the work station.

It is further recommended that this study be conducted at another time, with another group of students, located in a different community and possibly with a different test being used as the method of measuring the results.

APPENDIX

TABLE XII
INDIVIDUAL TEST SCORES FOR THE OUTDOOR PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|-------------|-----------------|----------------|-----------------|-------------|
| Student Number | Pre-test Score | Post-test Score | Differences | Student Number | Pre-test Score | Post-test Score | Differences |
| 1 | 44 | 49 | + 5.0 | 1 | 74 | 75 | + 1.0 |
| 2 | 64 | 68 | + 4.0 | 2 | 72 | 78 | + 6.0 |
| 3 | 72 | 51 | -19.0 | 3 | 69 | 68 | - 1.0 |
| 4 | 54 | 35 | -19.0 | 4 | 65 | 68 | + 3.0 |
| 5 | 62 | 62 | 0 | 5 | 66 | 53 | -13.0 |
| 6 | 58 | 66 | + 8.0 | 6 | 54 | 68 | +14.0 |

TABLE XIII
INDIVIDUAL TEST SCORES FOR THE MECHANICAL PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|-------------|-----------------|----------------|-----------------|-------------|
| Student Number | Pre-test Score | Post-test Score | Differences | Student Number | Pre-test Score | Post-test Score | Differences |
| 1 | 58 | 62 | +4.0 | 1 | 52 | 42 | -10.0 |
| 2 | 54 | 56 | +2.0 | 2 | 41 | 23 | -18.0 |
| 3 | 40 | 41 | +1.0 | 3 | 49 | 44 | - 5.0 |
| 4 | 56 | 61 | +5.0 | 4 | 46 | 48 | + 2.0 |
| 5 | 42 | 36 | -6.0 | 5 | 52 | 40 | -12.0 |
| 6 | 55 | 59 | +4.0 | 6 | 45 | 39 | - 6.0 |

TABLE XIV
INDIVIDUAL TEST SCORES FOR THE COMPUTATIONAL PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|----------------------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score Difference |
| 1 | 34 | 30 | - 4.0 | 1 | 12 | 13 + 1.0 |
| 2 | 36 | 36 | 0 | 2 | 9 | 11 + 2.0 |
| 3 | 14 | 16 | + 2.0 | 3 | 29 | 38 + 9.0 |
| 4 | 20 | 30 | +10.0 | 4 | 12 | 16 + 4.0 |
| 5 | 16 | 19 | + 3.0 | 5 | 10 | 26 +16.0 |
| 6 | 20 | 19 | - 1.0 | 6 | 31 | 17 -14.0 |

TABLE XV
INDIVIDUAL TEST SCORES FOR THE SCIENTIFIC PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 58 | 51 | - 7.0 | 1 | 42 | 37 | - 5.0 |
| 2 | 54 | 55 | + 1.0 | 2 | 34 | 42 | + 8.0 |
| 3 | 29 | 31 | + 2.0 | 3 | 40 | 45 | + 5.0 |
| 4 | 37 | 43 | + 6.0 | 4 | 27 | 32 | + 5.0 |
| 5 | 43 | 28 | -15.0 | 5 | 32 | 28 | - 4.0 |
| 6 | 28 | 26 | - 2.0 | 6 | 30 | 29 | - 1.0 |

TABLE XVI
INDIVIDUAL TEST SCORES FOR THE PERSUASIVE PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 24 | 24 | 0 | 1 | 30 | 30 | 0 |
| 2 | 24 | 29 | + 5.0 | 2 | 41 | 46 | + 5.0 |
| 3 | 46 | 45 | - 1.0 | 3 | 39 | 31 | - 8.0 |
| 4 | 38 | 37 | - 1.0 | 4 | 48 | 43 | - 5.0 |
| 5 | 41 | 45 | + 4.0 | 5 | 46 | 33 | -13.0 |
| 6 | 53 | 50 | - 3.0 | 6 | 40 | 32 | - 8.0 |

TABLE XVII
INDIVIDUAL TEST SCORES FOR THE ARTISTIC PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 20 | 31 | +11.0 | 1 | 28 | 27 | - 1.0 |
| 2 | 36 | 34 | - 2.0 | 2 | 43 | 44 | + 1.0 |
| 3 | 39 | 39 | 0 | 3 | 34 | 40 | + 6.0 |
| 4 | 26 | 16 | -10.0 | 4 | 27 | 26 | - 1.0 |
| 5 | 39 | 47 | + 8.0 | 5 | 34 | 25 | - 9.0 |
| 6 | 31 | 31 | 0 | 6 | 30 | 30 | 0 |

TABLE XVIII
INDIVIDUAL TEST SCORES FOR THE LITERARY PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 9.0 | 17.0 | + 8.0 | 1 | 12.0 | 9.0 | - 3.0 |
| 2 | 10.0 | 5.0 | - 5.0 | 2 | 8.0 | 11.0 | + 3.0 |
| 3 | 16.0 | 20.0 | + 4.0 | 3 | 7.0 | 12.0 | + 5.0 |
| 4 | 24.0 | 24.0 | 0 | 4 | 22.0 | 24.0 | + 2.0 |
| 5 | 12.0 | 19.0 | + 7.0 | 5 | 8.0 | 17.0 | + 9.0 |
| 6 | 9.0 | 12.0 | + 3.0 | 6 | 13.0 | 15.0 | + 2.0 |

TABLE XIX
INDIVIDUAL TEST SCORES FOR THE MUSICAL PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 5.0 | 4.0 | - 1.0 | 1 | 1.0 | 1.0 | 0 |
| 2 | 3.0 | 5.0 | + 2.0 | 2 | 8.0 | 7.0 | - 1.0 |
| 3 | 2.0 | 6.0 | + 4.0 | 3 | 8.0 | 5.0 | - 3.0 |
| 4 | 5.0 | 4.0 | - 1.0 | 4 | 14.0 | 14.0 | 0 |
| 5 | 9.0 | 8.0 | - 1.0 | 5 | 16.0 | 19.0 | + 3.0 |
| 6 | 7.0 | 7.0 | 0 | 6 | 8.0 | 3.0 | - 5.0 |

TABLE XX
INDIVIDUAL TEST SCORES FOR THE SOCIAL SERVICE PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 20.0 | 17.0 | - 3.0 | 1 | 61.0 | 70.0 | + 9.0 |
| 2 | 26.0 | 20.0 | - 6.0 | 2 | 36.0 | 41.0 | + 5.0 |
| 3 | 47.0 | 46.0 | - 1.0 | 3 | 41.0 | 36.0 | - 5.0 |
| 4 | 20.0 | 28.0 | + 8.0 | 4 | 36.0 | 41.0 | + 5.0 |
| 5 | 33.0 | 33.0 | 0 | 5 | 27.0 | 45.0 | +18.0 |
| 6 | 32.0 | 25.0 | - 7.0 | 6 | 39.0 | 48.0 | + 9.0 |

TABLE XXI
INDIVIDUAL TEST SCORES FOR THE CLERICAL PHASE
OF THE KUDER VOCATIONAL PREFERENCE TEST

| CHOICE-GROUP | | | | NO CHOICE-GROUP | | | |
|----------------|----------------|-----------------|------------|-----------------|----------------|-----------------|------------|
| Student Number | Pre-test Score | Post-test Score | Difference | Student Number | Pre-test Score | Post-test Score | Difference |
| 1 | 61.0 | 60.0 | - 1.0 | 1 | 38.0 | 65.0 | +27.0 |
| 2 | 49.0 | 42.0 | - 7.0 | 2 | 44.0 | 51.0 | + 7.0 |
| 3 | 31.0 | 34.0 | + 3.0 | 3 | 46.0 | 45.0 | - 1.0 |
| 4 | 59.0 | 63.0 | + 4.0 | 4 | 38.0 | 38.0 | 0 |
| 5 | 46.0 | 49.0 | + 3.0 | 5 | 38.0 | 40.0 | + 2.0 |
| 6 | 46.0 | 44.0 | - 2.0 | 6 | 47.0 | 42.0 | - 5.0 |

Vocational Agriculture
Agricultural Occupations

Name _____ Date _____

Selecting A Work Experience Area

Select three Agricultural Occupations which you would like to explore to secure additional understanding on how the business is run and to see if it might be an area which would be of interest to you. Number in order of preference.

- _____ Artificial Insemination
- _____ Bakery
- _____ County Extension Agent
- _____ D.H.I.A. Milk Tester
- _____ Florist Shop
- _____ Grain Elevator
- _____ Green House
- _____ Farm Implement Sales & Service
- _____ Feed Sales
- _____ Feed Manufacturing
- _____ Fertilizer Distribution Center
- _____ Hatchery
- _____ Insect Control Work
- _____ Livestock Feed Yards
- _____ Lumber Yard
- _____ Machine Shop
- _____ Meat Processing Plant
- _____ Tire Sales and Service
- _____ Veterinary Medicine
- _____ Welding Shop

LESSON PLAN

Area: Agricultural Occupations

Unit: Career Planning

Lesson 2: "Opportunities in Agricultural Occupations"

Objectives of the Lesson: To develop an understanding of the broad field of agriculture and the many opportunities available to young men with agricultural backgrounds.

Things I need to Know

Related Information

1. The importance of Agriculture to our total economy.

- A. Farmers have increased output 25% in the past ten years.
- B. The average U.S. farmer feeds himself and thirty-five others.
- C. The average Soviet farmer feeds himself and 2.5 others.
- D. Population trends in the U.S.:
Today--over 200 million
1970---225 million
1980---260 million
- E. Agricultural output must increase 70% by 1980.

2. Occupational Status of Agriculture in the U.S.

- A. Total U.S. employment--67 million
5,700,000--in production agriculture.
6,000,000--Services to farmers.
10,000,000--Processing, handling storing agriculture products.
250,000--Agriculture research.
- B. 33% of all jobs are in the field of agriculture.
13%--Production agriculture
27%--Areas related to agriculture.
- C. There are over 500 distinct occupations in the eight major agricultural fields.

Things I need to Know

Related Information

- 3. Capital Investment in Agriculture
 - D. Eight major agricultural fields:
 - Business
 - Education
 - Industry
 - Production
 - Service
 - Conservation
 - Research
 - Communications
 - A. Production agriculture:
 - Capital investment per farm, 36,000 to 43,000 dollars.
 - B. Investment per worker:
 - Farm----\$21,300
 - Factory--\$15,900
- 4. Reinvestment of agricultural earnings.
 - A. Farmers reinvest 75% of their \$35 billion gross income into materials and services to further agricultural production.
 - Farmers buy:
 - 13% of total petroleum produced.
 - 6½ million tons of steel annually.
 - 27 billion KWH of electricity.
 - \$5 billion annually in new buildings & equipment.
 - \$1 billion annually to remodel buildings and equipment.
 - \$9 billion annually in seed, fertilizer, feed and livestock.
 - \$26 billion annually on production goods and services.
 - \$16 billion annually on personal goods and services.
 - Use enough rubber annually to put tires on all new cars manufactured each year.

Things I need to Know

Related Information

5. Agricultural Occupations
grouped

- A. Production
- B. Business and Industry
- C. Service
- D. Professions

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USING THE KUDER VOCATIONAL PREFERENCE TEST
IN AN AGRICULTURAL OCCUPATIONS UNIT

by

DEAN M. PROCHASKA

B.S., Kansas State University, 1949

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MASTER OF SCIENCE

College of Education

Kansas State University
Manhattan, Kansas

1968

ABSTRACT

The purpose of this study was to compare the effectiveness of having a student experience an agricultural occupation in the area of his choice in contrast to the student receiving an experience not in the area of choice. The study was undertaken for the following reasons: (1) Non-farm agricultural occupations are increasing and the number of farmers and ranchers is decreasing; (2) Vocational agriculture departments have been designated to train individuals in agriculturally related occupations; (3) Many vocational agriculture departments are in the small communities which have only a limited number of businesses to serve as work stations; (4) Students often show an interest in an area not available for exploration on the local level; (5) Many of the skills needed for an occupation are similar to the skills needed to another occupation.

The Kuder Vocational Preference Test was used to test the students in the study. It was first given as a pre-test after the student had indicated a choice of an agricultural occupation. The students were then divided in two groups according to occupational choice. One group was placed in the area of choice of an occupation. The other group was placed in an occupation not in the area of choice. At the end of the three weeks exploration period, the two groups were again tested using the same Kuder Vocational Preference Test as a post-test.

The students with a choice of an occupational experience increased their average post-test scores in six of the ten phases for which the Kuder tested. The six students experiencing an occupation not of their choice increased their post-test scores in five of the ten areas being tested. A

comparison of the differences in the pre-test and the post-test scores for the two groups revealed the no-choice group had a wider variation between the gains and losses in the pre-test and the post-test scores for the individuals within each group.

Because of the limitations of such a small group being tested, the types of occupations available to be explored, the kind of community in which the study was made, this study should be repeated under other circumstances and with a different interest test being used as a measuring device. The six students making up the choice of an occupations group may have had a slight advantage to the six students experiencing an occupation in the area of no-choice. Their intelligence quotient scores, scholastic records and leadership abilities indicated to the researcher that this would be true. Whether this advantage was great enough to influence vocational educators who plan the curricula, it was questionable to the researcher.